

## Isolation of different organisms from urethra of adolescent boys and other groups

Organisms	Number of cases (%)				p values		
	Adolescents n = 50 (Group A)	Young males (monogamous relationship) n = 50 (Group B)	NGU n = 50 (Group C)	Other STDs n = 50 (Group D)	A vs B	A vs C	A vs D
<i>Ureaplasma urealyticum</i>	2 (4%)	19 (38%)	26 (52%)	17 (34%)	< 0.01	< 0.01	< 0.01
<i>Mycoplasma hominis</i>	1 (2%)	1 (2%)	3 (6%)	2 (4%)	—	NS	NS
<i>Mycoplasma genitalium</i>	0 (0%)	0 (0%)	0 (0%)	0 (0%)	—	—	—
<i>Trichomonas vaginalis</i>	0 (0%)	0 (0%)	1 (2%)	0 (0%)	—	—	—
Aerobes	33 (66%)	15 (30%)	30 (60%)	35 (70%)	< 0.01	NS	NS
<i>Staphylococcus aureus</i>	1 (2%)	3 (6%)	8 (16%)	9 (18%)	NS	< 0.05	< 0.05
<i>Staphylococcus epidermidis</i>	14 (28%)	3 (6%)	7 (14%)	10 (20%)	< 0.01	NS	NS
Diphtheroids	10 (20%)	5 (10%)	10 (20%)	13 (26%)	NS	NS	NS
<i>Corynebacterium xerosis</i>	6 (12%)	3 (6%)	5 (10%)	7 (14%)	NS	NS	NS
<i>Corynebacterium ovis</i>	4 (8%)	2 (4%)	5 (10%)	7 (14%)	NS	NS	NS
<i>Enterococcus faecalis</i>	1 (2%)	0 (0%)	0 (0%)	0 (0%)	—	—	—
<i>Micrococcus</i>	2 (4%)	0 (0%)	0 (0%)	0 (0%)	—	—	—
$\alpha$ -Haemolytic streptococcus	2 (4%)	0 (0%)	0 (0%)	0 (0%)	—	—	—
<i>Lactobacillus</i>	3 (6%)	0 (0%)	0 (0%)	0 (0%)	—	—	—
<i>Gardnerella vaginalis</i>	1 (2%)	0 (0%)	2 (4%)	0 (0%)	—	NS	—
<i>Acinetobacter</i>	0 (0%)	2 (4%)	0 (0%)	0 (0%)	—	—	—
Anaerobes	—	—	—	—	—	—	—
<i>Peptostreptococcus</i>	0 (0%)	6 (12%)	7 (14%)	8 (16%)	—	—	—
<i>Candida albicans</i>	0 (0%)	0 (0%)	2 (4%)	0 (0%)	—	—	—
Mixed growth	4 (8%)	10 (20%)	20 (40%)	16 (32%)	< 0.05	< 0.01	< 0.01
Bacterial growth of no significance	2 (4%)	2 (4%)	1 (2%)	1 (2%)	NS	NS	NS
Sterile (No growth)	15 (30%)	14 (28%)	11 (22%)	12 (24%)	NS	NS	NS

p < 0.01 and p < 0.05 = Significant.  
NS = Not significant (p > 0.05).

*Staphylococcus epidermidis* and *Lactobacillus* etc and hardly any potential pathogens. *Lactobacilli*, *Haemophilus vaginalis* and  $\alpha$ -haemolytic streptococci have been reported as part of the urethral flora in men without urethritis.<sup>1</sup> *Ureaplasma urealyticum* known to be present in the urethra of asymptomatic men,<sup>2</sup> was found in a significantly small number in adolescents as compared with all the other three groups (p < 0.01). In the sexually active men the picture was more clear. Aerobes did constitute major flora in all the groups but the incidence of *Staphylococcus aureus* was significantly more in the NGU and the non-urethritis STD group compared with men in monogamous relationship and unexposed adolescents. The role of *S. aureus* in the causation of NGU has been suggested by some workers.<sup>3</sup> The resident flora like *S. epidermidis* was replaced by other organisms to varying degrees in men who were sexually active. *G. vaginalis* has been isolated from only few of the men with urethritis and is considered as a commensal which may rarely acquire pathogenicity.<sup>4,5</sup> *Peptostreptococci* were isolated only from the urethra of sexually active men and their presence in a significant number of men deserves attention. Significantly more men in the NGU and STD groups had mixed growth of organisms compared with the sexually unexposed group where the isolates were obtained more often in pure growth. Subsequent to the sexual encounter the vaginal flora (normal or altered) contributes to the number and species of urethral isolates. Presumably these newly acquired organisms have a primary or contributory role in the causation of disease.

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### Screening for asymptomatic *Chlamydia trachomatis* infection in male students by examination of first catch urine

*Chlamydia trachomatis* causes non gonococcal urethritis and epididymitis in men and pelvic inflammatory disease in women and its role in tubal factor infertility has been well defined. Infection with *C. trachomatis* can also be asymptomatic; about 4%<sup>1</sup> of men attending genitourinary medicine clinics who are infected with *C. trachomatis* are asymptomatic compared with approximately 70% of infected women attenders.<sup>2</sup> The incidence of *C. trachomatis* in genitourinary clinic female populations is in the range of 5-17.6% and recent publications have shown a decrease in incidence in this group.<sup>3</sup> However Taylor-

Robinson has drawn attention to the fact that little is known of the prevalence in the community and he has suggested that by defining this and implementing screening policies in the community the long term sequelae of *C trachomatis* infection in females can be significantly reduced with an associated reduction in the economic and emotional cost.<sup>4</sup> Asymptomatic carriage in young men outside the genitourinary clinic needs to be defined as this could act as a reservoir of infection. Previous work has suggested prevalence rates of between 2–11% in the population.<sup>5</sup> The introduction of a reliable non invasive screening method for the detection of *C trachomatis*<sup>6,7</sup> means that we can now evaluate carriage in young men in the community.

We performed a study on 126 male university students having first obtained ethical approval. Only one student declined to be entered into the study. The age range was 18–34 years with a median age of 21 years. Twenty four percent (31/126) were noncaucasian, 1.6% (2/126) described themselves as Afro-Caribbean and 43% (55/126) were overseas students. In order to approach the students in a non threatening way we worked with the Department of Student Health and liaised closely with Health Promotion and the Student Union. It was decided that we would offer sexual health leaflets, condoms and addresses of family planning clinics and an opportunity for students to see the doctors individually to seek advice about sexual health issues.

Students attending for their routine admission medical were approached by two genitourinary doctors (JB, TC) and asked to participate in the study. The aims were explained and information sheets given out. Confidentiality was assured. Twenty ml of first catch urine was collected and transported to the Public Health Laboratory. All patients had held their urine for a minimum of three hours before collection. Antigen collection was performed using IDEIA enzyme immunoassay and all reactive samples were confirmed by direct immunofluorescence (DIF-SYVA). A simple questionnaire was filled in by each student asking age, ethnicity, antibiotic use in the past month and whether they had ever had sex and if so had condoms been used always/sometimes/never. Positive results were passed to the student health doctor who contacted the men who were then screened and treated at the genitourinary clinic. Contact tracing was implemented routinely.

Seventy three percent of students (92/126) had been sexually active at some time and after excluding those who had taken antibiotics in the past month the prevalence of confirmed *C trachomatis* infection in this student population was 2.6% (2/77). Both men were Caucasian and one was an overseas student. The two infected men who subsequently attended the genitourinary medicine clinic stated they had no symptoms. However, on direct questioning one admitted to mild intermittent dysuria. Examination of the second

patient revealed slight genital ulceration and a clear urethral discharge; he denied having had any sexual contact in the last six months. Microscopy on the Gram stained urethral smear of both men showed more than 5 polymorphs per high power field. Herpes simplex virus was also isolated from the penile ulcer of the second man. Overall 59% (54/92) of men always used condoms, 35% (32/92) used condoms sometimes and 7% (6/92) never used them. Both *C trachomatis*-positive men said that they "always" used condoms. The accuracy of the reported condom use is therefore open to question and it would seem likely that "always use" may have been an overestimate. Alternatively it may have been that they used condoms incorrectly.

Neither of the men could be considered as truly asymptomatic. This raises the question of "genital awareness" and the fact that these men would not have sought health care on their own, remaining infected in the community. The length of time one may carry *C trachomatis* in the absence of treatment is an important factor in transmission and one of these men had apparently been infected for over 6 months. Why this should occur is unknown. It may be linked to a failure of sexual health education. In this respect during the interview with the students we found 20% asked questions about sexual health issues and it was acknowledged that these were issues that students had felt unable to discuss previously.

In conclusion, this study found a 2.6% incidence of "asymptomatic" urethral *C trachomatis* infection in male students attending university using IDEIA enzyme immunoassay in first catch urine. Although these numbers are small this study indicates that chlamydial urethral infection of men in the community requires further investigation. In addition we need to evaluate whether raising sexual health awareness in young men will lead to a greater uptake of health care services for young men with mildly symptomatic urethritis thereby helping to reduce the "asymptomatic" reservoir of *C trachomatis* in the community.

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### Perihepatitis in women with salpingitis—an under-diagnosed clinical entity?

Perihepatitis, also referred to as Fitz-Hugh-Curtis syndrome (FHCS) is reported to occur in 5 to 15% of women with salpingitis, based on laparoscopic findings.<sup>1</sup> Although *Neisseria gonorrhoeae* was described as the causative organism in the cases reported earlier, *Chlamydia trachomatis* is now recognised as responsible for most cases of perihepatitis.<sup>1</sup> Three patients with FHCS were recognised and treated during a twelve month period in a department of genitourinary medicine.

The first patient was a 27 year old waitress, who was admitted as an emergency to the surgical ward as a suspected case of cholecystitis. She complained of having developed a colicky lower abdominal pain 14 days prior to admission, which, after ten days, migrated to the right upper quadrant. Pain was pleuritic in nature and radiated to the back. She was pyrexial, tender in the right iliac fossa and right hypochondrium and required parenteral analgesics for the relief of pain. Perihepatitis was suspected and she was referred to the genitourinary medicine clinic for confirmation. *C. trachomatis* from the cervix was detected. Serological tests for anti-chlamydial antibodies showed the presence of IgM and the microimmunofluorescence (micro-IF) test showed the IgG titre to be >4096. Perihepatitis was subsequently confirmed at laparoscopy and she responded to a two week course of doxycycline combined with a week's course of metronidazole.

The other two patients presented with similar symptoms but with lesser severity. *C. trachomatis* was detected in both instances and their serological tests showed anti-chlamydia IgG titres to be >1024. Both patients responded to therapy with doxycycline. Partner notification was successfully completed in all three instances.

Patients with FHCS can present to a variety of disciplines,<sup>2,3</sup> and the incidence is probably an under estimate. Diagnosis should be suspected in women who are young and who present with right upper quadrant localisation of pain which is pleuritic in nature, associated with uterine and adnexal tenderness on pelvic examination. Detection of *C. trachomatis* from the lower genital tract together with the demonstration of high titres of anti-chlamydial IgG (>1:1024) and the presence of IgM antibodies should strongly suggest FHCS.<sup>1</sup>

Although laparoscopic detection of violin string adhesions between the liver capsule and the anterior abdominal wall is essential for confirmation, a recent report has suggested that ultrasound can be used to confirm the

diagnosis.<sup>4</sup> If proven, the latter may eventually replace invasive laparoscopic procedures for confirmation of the diagnosis. The role of the genitourinary physician is vital not only to exclude other sexually transmitted diseases and ensure appropriate therapy, but also to treat contacts so that the risk of reinfection is eliminated.

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### Importation into the UK of a strain of *Neisseria gonorrhoeae* resistant to penicillin, ciprofloxacin and tetracycline

We report here what we believe to be the first isolation of a strain of penicillinase-producing *Neisseria gonorrhoeae* with high-level resistance to ciprofloxacin and tetracycline.

On the 3 February 1995 a 35 year old divorced male travelled to Angeles City in the Philippines on business. Here he had sexual contact with a local prostitute. He subsequently travelled to Australia by which time he had developed a bloody urethral discharge. He was prescribed 500 mg of tetracycline with 500 000 units of nystatin ("Mysteclin") orally twice daily for 14 days. On return to the Philippines his urethral discharge was still present and he was prescribed 300 mg rosoxacin (a 4-quinolone) *stat* orally. The patient returned to the UK at the end of February with the urethral discharge still present. The patient had had no UK sexual contacts since January. He was examined at his local genitourinary medicine clinic where intracellular Gram-negative diplococci were seen in a smear of the discharge. Urethral swabs were taken for culture and chlamydia antigen assay. He was prescribed 500 mg of ciprofloxacin *stat* and a 10 day course of ofloxacin (400 mg daily) was started.

The urethral swab taken at this time yielded oxidase-positive Gram-negative diplococci after 48 h incubation on New York City medium at 37°C in 5% CO<sub>2</sub>. This organism was identified as *N. gonorrhoeae* by the carbohydrate utilisation and Phadebact Monoclonal GC tests. The strain was demonstrated to be  $\beta$ -lactamase positive and found by agar dilution antibiotic sensitivity testing to be resistant to penicillin (minimum inhibitory concentration (MIC) >10 mg/l), ciprofloxacin (MIC 16 mg/l) and tetracycline (MIC 64 mg/l) but sensitive to spectinomycin (MIC 32